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A
METHOD
To determine the
AREAS
OF
Right-Lined Figures Univerſally.

VERY
Uſeful for Aſcertaining the Contents
of any SURVEY.

By *THO. BVRGH*, Eſq; Ingeneer and Surveyer
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Buildings in *IRELAND*.

DVBLIN:
Printed by A. Rhames, for J. Hyde, Bookſeller, in
Dame-ſtreet, 1724.

V

G.R. III
BRITISH MUSEUM

To the Right Honourable

William Conolly, Eſquire,

SPEAKER,

AND TO THE

MEMBERS

Of the Honourable

Houſe of Commons;

THIS

TREATISE

IS,

With Gratitude,

moſt humbly

Inſcribed and Dedicated by

Tho. Burgh.

TO THE READER.

T*HERE is reaſon to wonder that an* ESSAY *towards a Geometric and Univerſal Method to determine the Areas of Rectilineal Figures hath been ſo far neglected that it does not appear to have been thought of at a Time when the Methods of obtaining the Quadrature of Curvilineal Spaces have been carried to ſo great a degree of Perfection. And the want of ſuch a general Rule muſt be well known to thoſe who are acquainted with the Inaccuracies of common Surveys.*

As I had employed my Thoughts ſome Time on this Subject, I found a Method which fully anſwered my Purpoſe, and afterwards communicated it to ſeveral Gentlemen; I offer it now to the Publick in a Form ſome-

what different from that in which I firſt diſcovered it: And here I muſt acknowledge my ſelf obliged to Mr. Richard Dobbs, *a young Gentleman of great Hopes in* Dublin-College, *for a Thought of his, which gave occaſion to that Alteration, by which the* Method *is made more ſimple, and the Practice ſhortned.*

A METHOD To determine the AREAS OF *Right-Lined Figures Univerſally.*

Fig. I.

SUPPOSE the right-lined Figure *a b c d e f g h i k a* to be inſcribed in a Parallelogram A L M N, the Sides whereof A L and M N are Meridians, paſſing through the extream Weſt and Eaſt points of the Figure *a* and *f*; and the other Sides L N and A M are Parallels of Latitude, paſſing through the extream North and South points *d* and *h*.

From every other point of the Figure let Meridian-Lines be drawn to cut the Southern Parallel, as *k B*, *b C*, &c.

Note, The ſurround of the Figure is ſuppoſed to be made from *a* to *b* and thence to *c*, &c. until you return again to *a*.

DEFINITIONS.

1. The particular *Northing* or *Southing* of any Point or Station, is the Meridional difference between that Station and the next preceding. Thus the particular *Northing* of the point *b*, is *b C*—*a A*=*b m*.

2. The abſolute *Northing* of any Station is the Meridional diſtance between that Station and the moſt Southern Parallel A M. Thus the abſolute *Northing* of the point *b* is *C b*, and of the point *c* is *E c*.

3. The particular *Eaſting* or *Weſting* is the difference of Eaſting or Weſting between any Station and the next foregoing, meaſured on the Parallel A M. Thus the particular *Eaſting* of the point *d* is E G, and the particular *Weſting* of the point *k* is D B.

4. The abſolute *Eaſting* of any Station, is the diſtance of that Station from the moſt Weſterly Meridian A L, counted on the Parallel A M. Thus the abſolute *Eaſting* of the point *d* is A G.

5. A *Simple Figure* is that which proceeds from the extream Weſt point *a* to the extream Eaſt point *f* by an Eaſterly Courſe without any change to the Weſtward, and from *f* returns again to *a* by a Weſterly Courſe without any change to the Eaſtward. The Changes from North to South, or from South to North, are not here accounted to diſturb the Simplicity of the Figure.

6. A *Complicated Figure* is that which alters the direction of its Courſe from Eaſt to Weſt, between the extream Weſt point *a* and the extream Eaſt point *k*, or from Weſt to Eaſt in returning from *k* to *a*. Thus the alteration from Eaſt to Weſt, between the Stations *e* and *f*, and from Weſt to Eaſt, between *f* and *g*, make this a Complicated Figure. FIG. II.

7. The Portion *s d e f s* is called an *Excreſcence.*

8. A Figure is ſaid to be more or leſs complicated, as ſuch Excreſcences do more or leſs abound in it.

PROB. I.

In any Right-lined Figure, the Sides, and Angles which are made by the interſection of each Side with the Meridian, being given, to find the particular Northing or Southing, Eaſting or Weſting of each Station.

SOLUTION.

As Radius : to the Sine of the given Angle : : ſo is the given Side : to the Eaſting or Weſting (according as the Angle varies from the Meridian) of the next Stationary point.

Again, As Radius : to the Co-Sine of the given Angle :: ſo is the given Side : to the Northing or Southing of the ſame point.

DEMONST.

G. I. The Demonſtration is evident from plain Trigonometry, for in the right angled Triangle *a b m*, the Side *a b* being given, and the Angle *L a b*=*a b m*; the Baſe *a m*, or the particular Eaſting of the point *b* (by *Def.* 3.) is as the Sine of the given Angle *a b m*; and the Perpendicular *b m*, or the particular Northing of the point *b* (by *Def.* 1.) is as the Co-Sine of the ſame given Angle. Therefore, *&c.* Q. E. D.

PROB. II.

To find the extream North and South Points of any Right-lined Figure.

Take the Meridional difference between any two adjacent Stations, and write it down for the firſt Quantity; if it be Northing with a poſitive Sign, if Southing with a Negative; add to that the Meridional difference between that Station and the next with its proper Sign, poſitive if Northing, negative if Southing; this will be a ſecond Quantity. Proceed in the ſame manner through all the Stations, always obſerving to add to the laſt Sum the Meridional difference of the next Station with its proper Sign. It is evident from the Operation that the Northings being poſitive, the greateſt of ſuch poſitive Quantities will be the Meridional diſtance between the point where you began to reckon and the moſt Northern point; and the Southings being negative, the greateſt of ſuch negative Quantities will be the Meridional diſtance between the firſt point, from which you began, and the moſt Southern point of the Figure. Q. E. I.

COR. I.

The greateſt negative Quantity, but with a contrary Sign, will be equal to the abſolute Northing of the firſt Station; and being added to the greateſt poſitive Quantity, the Sum will be equal to the whole Meridian-Line which bounds the circumſcribing Parallelogram.

COR. II.

The utmoſt Eaſt and Weſt points may be determined in like manner, by collecting at every Station the Sum of the particular Eaſtings and Weſtings, but with contrary Signs; and conſequently the length of the Parallel between the Eaſt and Weſt Meridians may be found, and the circumſcribing Parallelogram defined.

COR. III.

Hence the abſolute Northing of every Station may be determined. To the abſolute Northing of the firſt Station (found by *Cor.* 1. of this *Prob.*) add the Meridional difference between that and the next Station, under its proper Sign; that is to ſay, add if it be Northing, and ſubduct if it be Southing; and the Sum or difference is the abſolute Northing of the ſecond Station. Proceed in the ſame manner through all the Stations, 'till the abſolute Northing of every Station be obtained.

LEMMA.

Fig. I. The Area of the Trapezium *A a b C* is equal to the Rectangle made by the Semi-Sum of the Parallel Sides *A a* and *C b* drawn into the Line *A C*. Which is very well known.

COR.

The Sides *A a* and *C b* are the abſolute Northings of the two next adjacent Stations *a* and *b*, and *A C* is the particular Eaſting or Weſting between them. Therefore the Rectangle, made by the Semi-Sum of the abſolute Northings of two next adjacent Stations drawn into the particular Eaſting or Weſting between them, is equal to the Area of ſuch a Trapezium.

PROB. III.

To find the Area of any Right-lined Figure.

1. Let every particular Eaſting between two adjacent Stations (found by *Prob.* 1.) be drawn into the Semi-Sum of the abſolute Northings (found by *Cor.* 3. *Prob.* 2.) of the ſame two Stations, and collect the Sum of ſuch Rectangles.

2. Let every particular Weſting between two adjacent Stations be drawn into the Semi-Sum of the abſolute Northings of the ſame Stations, and collect the Sum of ſuch Rectangles.

3. The difference of the two Sums is equal to the Area ſought.

DEMONST.

Caſe 1. Let the *Simple Figure* (*Def.* 5.) *a b c d e f g h i k a* be inſcribed in a Parallelogram. FIG. I.

1. If from the Area *A a b c d e f M A*, be ſubducted the Area *M f g h i k a A M*, the remainder will be equal to the Area of the inſcribed Figure.

2. But the Area *A a b c d e f M A* is equal to the Sum of all the Trapezia, *A a b C* + *C b c E* + &c. That is (by *Cor.* of *Lemma*) equal to the Sum of all the Rectangles which are made by the particular Eaſting between every two adjacent Stations drawn into the Semi-Sum of the abſolute Northings of the ſame two Stations.

3. And the Area *M f g h i k a A M* is equal to the Sum of all the Trapezia, *M f g H* + *H g h F* + &c. That is, equal (by the ſame *Cor.*) to the Sum of all the Rectangles which are made by the particular Weſting between every two adjacent Stations drawn into the Semi-Sum of the abſolute Northings of the ſame two Stations.

4. Which laſt Area therefore being ſubducted from the former, the difference is equal to the Area of the inſcribed Figure. Q. E. D.

IG. II. *Caſe* 2. In the *Complicated Figure*, *a b c d e f g h i k l m n o p a*,

1. The Area, *A a b c d e H A* will be had (by Art. 2. *Caſe* 1.)

2. The Area *e f E H* will alſo be had (by Art. 3. *Caſe* 1.) which is to be deducted.

3. The Area *E f g h i k M E* will be found (by Art. 2. *Caſe* 1.)

4. Laſtly, the Area *M k l m n o p a A* will be found (by Art. 3. *Caſe* 1.) which being likewiſe ſubducted, the difference is equal to the Area ſought.

The Area therefore of the *Excreſcence*, *s d e f s* is rightly found, and the Area of the whole Figure.

And if a Figure had any Number that may be aſſigned of ſuch *Excreſcences*, that is (*Def.* 8.) how complicated ſoever it be, it may be demonſtrated of every particular Excreſcence that its Area ſhall be truly found, as is here demonſtrated of the Excreſcence *s d e f s*. Therefore in all Caſes the Area of any Right-lined Figure may be found as in the firſt Caſe of this *Problem*. Q. E. D.

OBSERVATION.

It is to be obſerved, that the Area of the ſame Figure (as that of *Fig.* 1.) may be had four ſeveral ways, all agreeing in the concluſion. For it is either equal,

1. To the Figure *A a b c d e f M A* — the Figure *M f g h i k a A M*, as was ſhewn in *Prob.* 3. Fig. I.

2. Or to the Figure *LdefghAL—Ahikabcd LA.*

3. Or to the Figure *NfghikaLN—Labcdef NL.*

4. Or laſtly, to the Figure *MhikabcdNM—N defghMN*, and conſequently the Work admits variety of Proof.

SCHOLIUM.

Fig. I. Let a Table be made with twelve Columns, ruled acroſs with as many Lines as there are Stations in the Figure. In the firſt Column, marked *Stat.* let the Stations be numbred regularly downwards, 1, 2, 3, *&c.* accounting that to be the firſt Station at which the Admeaſurement began.

In the ſecond Column, marked *Angles*, write the Angle made at that Station between the Side and the Meridian.

In the third, marked *Sides*, write the Side meaſured between the two Stations.

In the four ſucceeding Columns, marked *N*, *S*, *E*, *W*, write the particular Northing or Southing, Eaſting or Weſting (found by *Prob.* 1.) in the Columns bearing their initial Letters, but ſo that the Bearings found between the firſt and ſecond Stations be writ on the Line anſwering to the ſecond; and thoſe between the ſecond and third Stations, anſwering to the third; and ſo on 'till you return to the firſt Station, where the Bearings will be thoſe found between the laſt Station and the firſt. For, if the Courſe be North-Eaſt, the Northing and Eaſting found, do belong to the latter and not to the firſt Station.

When theſe Columns are compleated, if the Sums of the Columns N and S be equal; and alſo the Sums of the Columns E and W, then the Sides and Angles have been rightly exhibited, otherwiſe not.

The eighth Column, marked C, is the *Criterion*, by which the moſt Southerly point of the Figure is determined, by *Prob.* 2. and it is found thus; Let us ſuppoſe the firſt Station to be at c, then, in the ſecond Line, anſwering to Station d, write the Bearing found in N or S belonging to that Station, with a poſitive Sign if Northing, with a negative if Southing. Add to that the next Northing or Southing with its proper Sign, and write the Sum in the next Line anſwering to Station e. Thus the Northing between c and d is found to be nd, which is to be writ in the Column C anſwering to d. The Southing between d and e is found to be ds, therefore you are to write $nd - ds$ in the Column C anſwering to e; and ſo you are to proceed through all the Stations. Now the Lines nd, ds, et, &c. being given (by *Prob.* 1.) the greateſt of them, having a negative Sign, anſwers to the moſt Southern Station: (by *Prob.* 2.) Thus the greateſt negative Line (as it may be called) is here found to be $dn - ds - et + wg - gH$, anſwering to the Station h, which therefore is the moſt Southern point of the Figure.

The ninth Column, marked *L*, ſhews the abſolute Northing of each Station. The abſolute Northing of the firſt Station *c* is equal to the greateſt negative Line in the Column *C*, but with a contrary Sign (by *Cor.* 1. *Prob.* 2.) Therefore changing the Signs of the ſeveral Lines which compoſe the greateſt negative Line in *C*, write them down in the Column *L*, anſwering to the Station *c*. Thus $Hg - gw + te + ds - dn = Ec$. Add to that the Northing or Southing of the next Station with its proper Sign, and write it down for the abſolute Northing of the next Station *d*, and ſo on.

The tenth Column, marked *T*, ſhews the Sums of the abſolute Northings of every two adjacent Stations, and is formed by adding every two Quantities ſucceſſively in *L*, *viz.* the $1^{ſt}+2^{d}$, the $2^{d}+3^{d}$, the $3^{d}+4^{th}$, *&c.*

The Column *TE* ſhews the Rectangles made by each particular Eaſting between two Stations drawn into the Sum of the two abſolute Northings of the ſame Stations; and is formed by multiplying each Quantity in *T* into the reſpective Quantity, lying in the ſame Line, in *E*.

The Column *TW* is formed in like manner, by multiplying each Quantity in *T* into its reſpective Quantity in *W*.

Theſe Columns being thus formed, caſt up ſeverally the Products in the Columns *TE* and *TW*, ſubſtract the latter from the former, and half the remainder is the Content of the Area. Q. E. I.

An

An Example of the foregoing Method in Numbers.

Let *Figure* II. repreſent a piece of Ground whoſe Area is ſought.

The Surveyor is ſuppoſed to begin his Work at any point of the Land he pleaſes, but to go round with the Sun, leaving the Field to be ſurveyed always on his right-hand; and when the Sides and Angles are taken, his Field-Book is to be made in the manner before directed: But becauſe common Surveyors may not readily comprehend that general Method, and this Treatiſe being principally intended to make the Practice of Surveying ſure and eaſy, I have formed a Table for determining the Content of the ſecond Figure, as a Model for any Figure whatſoever; and by explaining how the ſeveral Columns in that Table are filled, the Surveyor will eaſily perceive the Uſes of them, and how he is to compoſe Tables for any Survey he is to make.

Note, The beſt Inſtrument I have yet ſeen for the purpoſe of Surveying is a *Theodolite*, with two concentric Circles, made by Mr. *Gabriel Stoakes* at the *Dial* in *Eſſex-ſtreet*, *Dublin*; which not only avoids the Inconveniencies, but corrects the Errors of the Needle.

Fig. II. Suppoſe then the firſt Station to be *a*, the ſecond *b*, and ſo on, and let the Angles and Sides of the Field-Work be as in the Table annexed to the Figure.

The Angle at *a*, made by the Meridian *L a* and the Side *a b*, is 56¼ *Deg. N. E.* and the Side *a b* is 3 *Chains*, 60 *Links*.

To find the Eaſting make this Analogy (by *Prob.* 1.) As Radius 1 : to the Sine of 56¼=8314696 :: ſo is the Side 3 *Chains* 60 *Links* to the Eaſting=2.993=3 nearly.

The Eaſting 3 thus found I write in the Column *E* againſt *b* the ſecond Station.

To find the Northing make this Analogy (by *Prob.* 1.) As Radius 1 : to the Co-Sine of 56¼=5555702 :: ſo is the Side 3 *Chains* 60 *Links* to the Northing =2.000052. which Northing 2 I write in the Column *N* anſwering to *b*, the ſecond Station. In the ſame manner the four Columns, *N*, *S*, *E*, *W*, might be compleated, but the trouble of multiplying the given Side, between every two Stations, into the Sine and Co-Sine of the Angle, will be avoided by the Tables of Latitude and Departure at the end of this Tract; the Uſes whereof, in relation to Surveys, are there explained.

When the Columns, *N*, *S*, *E*, *W*, are compleated, caſt up the Sums of the Columns, *N* and *S*, and if they are equal, then caſt up the Sums of the Columns, *E* and *W*, and if they alſo are equal, you may conclude the Field-Work is accurate.

To form the Column *C*, take the Northing of *b*, the ſecond Station, and enter it in the Column *C* in a Line with *b*. The next Station *c* having alſo a Northern Bearing 2, add that to the laſt Number in *C*, which gives the Number 4, to be placed in Column *C*, in a Line with *c*. The ſucceeding Station *d* having a Southing 1, it is to be deducted from the laſt Number 4, in the Column *C*, and leaves 3 to be writ in *C* in a range with *d*. Thus proceed, adding the *Northing* and ſubſtracting the *Southing* of each ſucceeding Station to or from the Number laſt ſet down in the Column *C*; and ſo go on until you come to the Station *f*, where 0 is entred againſt it in the Column *C*; which ſhews that this Station hath no difference of Northing or Southing from the point *a*, but lies in the ſame Parallel of Latitude. The Station from *f* to *g* having a Southing 1, it muſt be deducted from 0, which gives — 1, which muſt be entred in *C* with its negative Sign, and in a range with *g*; the next Station *h* having alſo a Southing — 1, which, together with the foregoing — 1, makes — 2, to be entred in *C* in a Line with *h*, and in this manner fill up the Column *C*.

The Column *L* is thus formed; Look in the Column *C* for the greateſt Number with a negative Sign, which appears to be — 5 ſtanding againſt Station *m*, which ſhews that *m* is the moſt Southern point of the Survey. This Number 5, with a poſitive Sign, is the abſolute Northing of the Station *a*, and is accordingly to be entred in the Column *L* in a range with *a*. The Northing of the Station *b*, reckoned

from

from *a* is 2, and this being added to 5, makes 7, to be entred againſt *b* in the Column *L*, for the abſolute Northing of that Station. Proceed in this manner to compleat the Column *L*, by adding the Northings and ſubducting the Southings, as was directed for making the Column *C*.

The Column *T* is formed out of the Column *L*, by adding every two Numbers ſucceeding one another in *L*, and writing their Sum in *T*, and in a range with the latter Term in *L*. Thus 5 and 7, the two firſt Numbers in *L*, make 12, to be written in *T* in a range with 7 in *L*. So 7 and 9, the next pair of Numbers in *L*, make 16, to be written in *T*, oppoſite to 9, the latter Number in *L*. Thus you proceed 'till you come to the laſt Number in *L*, which is to be added to the firſt in *L*. So the laſt Number 4, added to the firſt Number 5 in *L*, makes 9, to be placed in *T* in a Line with the firſt Number in *L*.

The Column *T E* is formed as was before ſaid, by multiplying each Number in *T* by the Number lying in the ſame Line with it in *E*.

The Column *T W* is formed in like manner, by multiplying each Number in *T* by the Number in *W* lying in the ſame Line. When theſe Columns are thus formed, caſt up ſeverally the Products in the Columns *T E* and *T W*, ſubſtract the latter from the former, and half the remainder is the Content of the Survey. Q. E. I.

A TABLE for Aſcertaining the Content of *Fig.* II.

Stat.	*Angles.*	*Sides.*	*N.*	*S.*	*E.*	*W.*	*C.*	*L.*	*T.*	*T E.*	*T W.*
		Ch. Lin.									
1 *a*	*N. W.* 63½	2. 24.	1.	—	—	2.	—	5.	9.	- - - - - -	18.
2 *b*	*N. E.* 56¼	3. 60.	2.	—	3.	—	2.	7.	12.	36.	- - - - - -
3 *c*	*N. E.* 26½	2. 24.	2.	—	1.	—	4.	9.	16.	16.	- - - - - -
4 *d*	*S. E.* 71½	3. 16.	—	1.	3.	—	3.	8.	17.	51.	- - - - - -
5 *e*	*S. E.* 26½	2. 24.	—	2.	1.	—	1.	6.	14.	14.	- - - - - -
6 *f*	*S. W.* 71½	3. 16.	—	1.	—	3.	0.	5.	11.	- - - - - -	33.
7 *g*	*S. E.* 45.	1. 41.	—	1.	1.	—	-1.	4.	9.	9.	- - - - - -
8 *h*	*S. E.* 63½	2. 24.	—	1.	2.	—	-2.	3.	7.	14.	- - - - - -
9 *i*	*N. E.* 45.	1. 41.	1.	—	1.	—	-1.	4.	7.	7.	- - - - - -
10 *k*	*S. E.* 26½	2. 24.	—	2.	1.	—	-3.	2.	6.	6.	- - - - - -
11 *l*	*S. W.* 45.	1. 41.	—	1.	—	1.	-4.	1.	3.	- - - - - -	3.
12 *m*	*S. W.* 63½	2. 24.	—	1.	—	2.	-5.	0.	1.	- - - - - -	2.
13 *n*	*N. W.* 45.	2. 83.	2.	—	—	2.	-3.	2.	2.	- - - - - -	4.
14 *o*	*S. W.* 63½	2. 24.	—	1.	—	2.	-4.	1.	3.	- - - - - -	6.
15 *p*	*N. W.* 26½	3. 16.	3.	—	—	1.	-1.	4.	5.	- - - - - -	5.
			11	11	13	13				153. --	71.
										71.	
										2)82(=41= Content.	

Note, The Angles in the foregoing Table are taken to the quarter of a Degree neareſt to the Truth, the common Inſtruments uſed for obſerving Angles in the Field not being capable to take them to a greater nicety. And for that reaſon the Tables of Latitude and Departure at the end of this Tract are made to anſwer only to Degrees and Quarters.

Errors to be corrected in the following Tables.

The firſt Column ſhews the Angle under which the Error lies; the ſecond, ſhews the Number in the left-hand Column, in a Line with which the Error is; the third, how the ſame ſhould be read.

Angles.	*Lines.*	*Read.*
9¼	1	0.9870
80¼	7	1.1854
75½	4	1.0015
75¼	4	1.0184
19¼	3	2.8323
19½	4	3.7706
70¼	8	2.7033
20¼	2	1.8764
58½	6	3.1350
34¼	4	3.3063
35¾	8	6.4926
37¾	5	3.9534
48¾	6	3.9560
48¾	8	5.2747

L
a
A

Fig. 1.

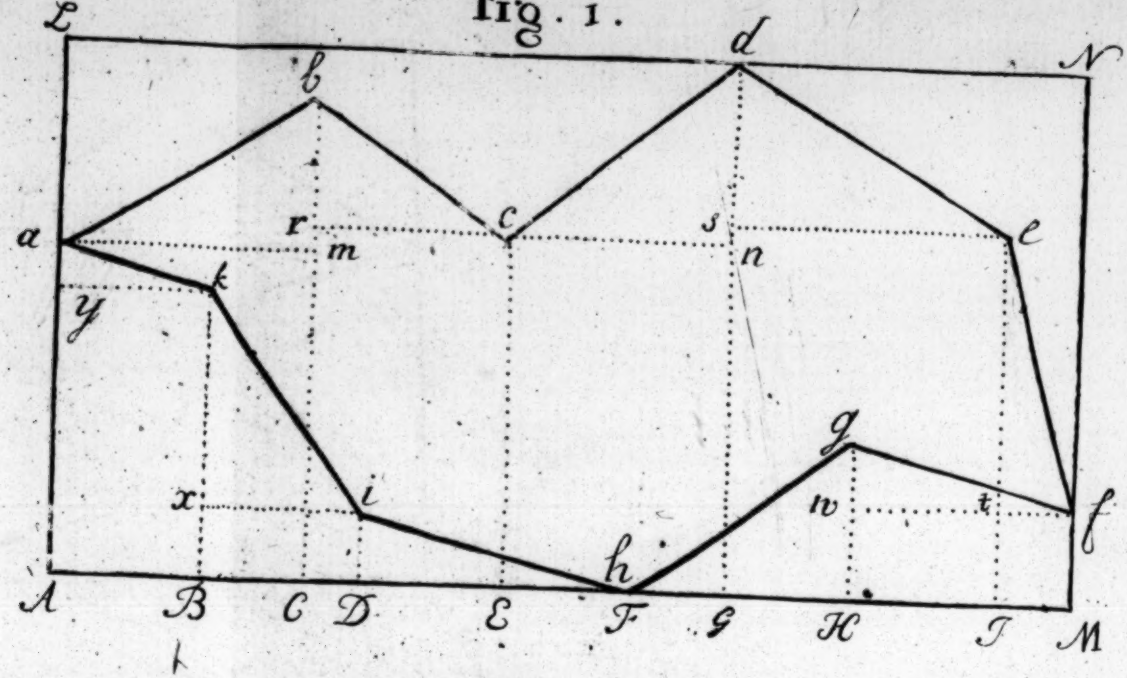
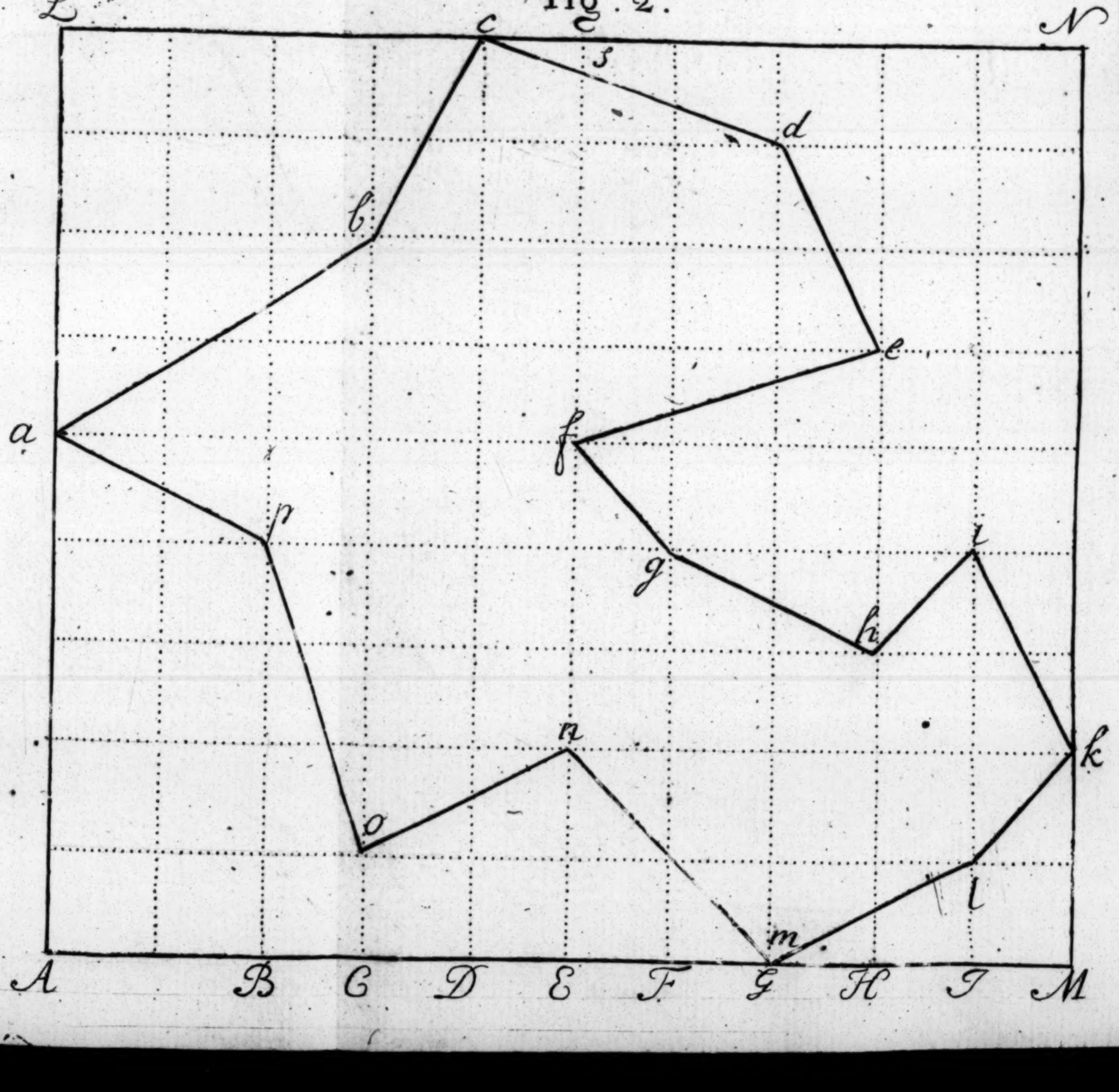

L
b
d
N
r
c
s
a
m
n
e
k
y
g
x
i
w
t
f
h
A
B
C
D
E
F
G
H
I
M

Fig. 2.


L
c
s
N
d
b
e
a
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	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.
	- . -	- . -	0 ¼	89 ¾	0 ½	89 ½	0 ¾	89 ¼
1	— —	— —	0.9999	0.0043	0.9999	0.0087	0.9999	0.0131
2	— —	— —	1.9999	0.0087	1.9999	0.0174	1.9998	0.0262
3	— —	— —	2.9999	0.0131	2.9998	0.0261	2.9997	0.0392
4	— —	— —	3.9999	0.0174	3.9998	0.0349	3.9996	0.0523
5	— —	— —	4.9999	0.0218	4.9998	0.0436	4.9995	0.0654
6	— —	— —	5.9999	0.0262	5.9997	0.0523	5.9994	0.0785
7	— —	— —	6.9999	0.0305	6.9997	0.0611	6.9993	0.0916
8	— —	— —	7.9999	0.0349	7.9997	0.0718	7.9992	0.1047
9	— —	— —	8.9999	0.0393	8.9996	0.0785	8.9991	0.1178
	1. -	89. -	1 ¼	88 ¾	1 ½	88 ½	1 ¾	88 ¼
1	0.9998	0.0174	0.9997	0.0218	0.9996	0.0262	0.9995	0.0305
2	1.9997	0.0349	1.9995	0.0436	1.9993	0.0523	1.9990	0.0610
3	2.9995	0.0523	2.9993	0.0654	2.9989	0.0785	2.9986	0.0916
4	3.9994	0.0698	3.9990	0.0872	3.9986	0.1047	3.9981	0.1221
5	4.9992	0.0872	4.9988	0.1090	4.9982	0.1309	4.9976	0.1527
6	5.9991	0.1047	5.9985	0.1309	5.9979	0.1570	5.9972	0.1832
7	6.9989	0.1221	6.9983	0.1527	6.9976	0.1832	6.9967	0.2137
8	7.9988	0.1396	7.9981	0.1745	7.9972	0.2094	7.9962	0.2443
9	8.9986	0.1570	8.9978	0.1963	8.9969	0.2356	8.9958	0.2748
	2. -	88. -	2 ¼	87 ¾	2 ½	87 ½	2 ¾	87 ¼
1	0.9994	0.0349	0.9992	0.0392	0.9990	0.0436	0.9988	0.0479
2	1.9987	0.0698	1.9984	0.0785	1.9981	0.0872	1.9977	0.0959
3	2.9981	0.1047	2.9977	0.1178	2.9971	0.1308	2.9965	0.1439
4	3.9975	0.1396	3.9969	0.1570	3.9962	0.1745	3.9954	0.1919
5	4.9969	0.1745	4.9961	0.1963	4.9952	0.2181	4.9942	0.2399
6	5.9963	0.2094	5.9954	0.2355	5.9943	0.2617	5.9931	0.2878
7	6.9957	0.2443	6.9946	0.2748	6.9933	0.3053	6.9919	0.3358
8	7.9951	0.2792	7.9938	0.3141	7.9924	0.3489	7.9908	0.3838
9	8.9945	0.3141	8.9930	0.3533	8.9914	0.3926	8.9896	0.4318
	3. -	87. -	3 ¼	86 ¾	3 ½	86 ½	3 ¾	86 ¼
1	0.9986	0.0523	0.9984	0.0567	0.9981	0.0610	0.9978	0.0654
2	1.9973	0.1047	1.9968	0.1134	1.9963	0.1221	1.9957	0.1308
3	2.9959	0.1570	2.9952	0.1701	2.9944	0.1831	2.9936	0.1962
4	3.9945	0.2093	3.9935	0.2268	3.9925	0.2442	3.9914	0.2616
5	4.9931	0.2617	4.9919	0.2835	4.9907	0.3052	4.9893	0.3270
6	5.9918	0.3140	5.9903	0.3402	5.9888	0.3663	5.9871	0.3924
7	6.9904	0.3664	6.9888	0.3968	6.9869	0.4273	6.9850	0.4578
8	7.9890	0.4187	7.9871	0.4535	7.9851	0.4884	7.9829	0.5232
9	8.9877	0.4710	8.9855	0.5102	8.9832	0.5494	8.9807	0.5886
	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.

	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S,	E. W.
	4. -	86. -	4 1/4	85 3/4	4 1/2	85 1/2	4 3/4	85 1/4
1	0.9976	0.0698	0.9972	0.0741	0.9969	0.0784	0.9965	0.0828
2	1.9951	0.1395	1.9945	0.1482	1.9938	0.1569	1.9931	0.1656
3	2.9927	0.2093	2.9917	0.2223	2.9907	0.2354	2.9897	0.2484
4	3.9902	0.2790	3.9890	0.2964	3.9977	0.3138	3.9863	0.3312
5	4.9878	0.3488	4.9862	0.3705	4.9846	0.3923	4.9828	0.4140
6	5.9854	0.4185	5.9835	0.4446	5.9815	0.4707	5.9794	0.4968
7	6.9829	0.4883	6.9807	0.5187	6.9784	0.5492	6.9759	0.5796
8	7.9805	0.5580	7.9780	0.5928	7.9753	0.6277	7.9725	0.6625
9	8.9780	0.6278	8.9752	0.6670	8.9722	0.7061	8.9691	0.7453
	5. -	85. -	5 1/4	84 3/4	5 1/2	84 1/2	5 3/4	84 1/4
1	0.9961	0.0871	0.9958	0.0915	0.9954	0.0958	0.9949	0.1002
2	1.9923	0.1743	1.9916	0.1830	1.9908	0.1917	1.9899	0.2004
3	2.9884	0.2615	2.9874	0.2745	2.9862	0.2875	2.9849	0.3006
4	3.9846	0.3486	3.9832	0.3660	3.9816	0.3834	3.9799	0.4008
5	4.9808	0.4358	4.9790	0.4575	4.9770	0.4792	4.9748	0.5009
6	5.9769	0.5229	5.9748	0.5490	5.9724	0.5751	5.9698	0.6011
7	6.9731	0.6101	6.9706	0.6405	6.9678	0.6709	6.9648	0.7013
8	7.9692	0.6972	7.9664	0.7320	7.9632	0.7668	7.9597	0.8015
9	8.9654	0.7844	8.9622	0.8235	8.9586	0.8626	8.9547	0.9017
	6. -	84. -	6 1/4	83 3/4	6 1/2	83 1/2	6 3/4	83 1/4
1	0.9945	0.1045	0.9940	0.1088	0.9935	0.1132	0.9930	0.1175
2	1.9890	0.2090	1.9881	0.2177	1.9871	0.2264	1.9861	0.2351
3	2.9836	0.3136	2.9821	0.3266	2.9807	0.3396	2.9792	0.3526
4	3.9781	0.4181	3.9762	0.4355	3.9743	0.4528	3.9723	0.4701
5	4.9726	0.5226	4.9703	0.5443	4.9678	0.5660	4.9653	0.5877
6	5.9671	0.6272	5.9643	0.6532	5.9614	0.6792	5.9584	0.7052
7	6.9616	0.7317	6.9584	0.7621	6.9550	0.7924	6.9515	0.8228
8	7.9562	0.8362	7.9524	0.8709	7.9486	0.9056	7.9445	0.9403
9	8.9507	0.9408	8.9465	0.9798	8.9421	1.0188	8.9376	1.0578
	7. -	83. -	7 1/4	82 3/4	7 1/2	82 1/2	7 3/4	82 1/4
1	0.9925	0.1218	0.9920	0.1262	0.9914	0.1305	0.9908	0.1348
2	1.9851	0.2437	1.9840	0.2524	1.9829	0.2610	1.9817	0.2697
3	2.9776	0.3656	2.9760	0.3786	2.9743	0.3916	2.9726	0.4145
4	3.9702	0.4874	3.9680	0.5048	3.9657	0.5221	3.9635	0.5394
5	4.9627	0.6093	4.9600	0.6310	4.9572	0.6526	4.9543	0.6742
6	5.9553	0.7312	5.9520	0.7572	5.9487	0.7831	5.9452	0.8091
7	6.9478	0.8531	6.9440	0.8834	6.9401	0.9137	6.9361	0.9439
8	7.9404	0.9750	7.9360	1.0096	7.9315	1.0442	7.9269	1.0788
9	8.9329	1.0968	8.9280	1.1358	8.0230	1.1747	8.9178	1.2136
	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.

	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.
	8. -	82. -	8 ¼	81 ¾	8 ½	81 ½	8 ¾	81 ¼
1	0.9902	0.1391	0.9896	0.1435	0.9890	0.1478	0.9883	0.1521
2	1.9805	0.2783	1.9793	0.2870	1.9780	0.2956	1.9767	0.3042
3	2.9708	0.4175	2.9689	0.4305	2.9670	0.4434	2.9651	0.4564
4	3.9611	0.5567	3.9586	0.5740	3.9560	0.5912	3.9534	0.6085
5	4.9513	0.6959	4.9483	0.7175	4.9451	0.7390	4.9418	0.7606
6	5.9416	0.8350	5.9379	0.8605	5.9341	0.8868	5.9302	0.9127
7	6.9319	0.9742	6.9276	1.0044	6.9231	1.0347	6.9185	1.0649
8	7.9221	1.1134	7.9172	1.1479	7.9121	1.1825	7.9069	1.2170
9	8.9124	1.2526	8.9069	1.2914	8.9011	1.3303	8.8952	1.3691
	9. -	81. -	9 ¼	80 ¾	9 ½	80 ½	9 ¾	80 ¼
1	0.9877	0.1564	0.9879	0.1607	0.9863	0.1650	0.9855	0.1693
2	1.9754	0.3129	1.9740	0.3215	1.9726	0.3301	1.9711	0.3387
3	2.9631	0.4693	2.9610	0.4822	2.9589	0.4951	2.9566	0.5080
4	3.9508	0.6257	3.9480	0.6430	3.9451	0.6602	3.9422	0.6774
5	4.9384	0.7822	4.9350	0.8037	4.9314	0.8252	4.9278	0.8467
6	5.9261	0.9386	5.9220	0.9644	5.9177	0.9903	5.9133	1.0161
7	6.9138	1.0950	6.9090	1.1252	6.9040	1.1553	6.8989	1.1454
8	7.9015	1.2515	7.8960	1.2859	7.8903	1.3204	7.8844	1.3548
9	8.8892	1.4079	8.8830	1.4467	8.8766	1.4854	8.8700	1.[illegible]241
	10. -	80. -	10 ¼	79 ¾	10 ½	79 ½	10 ¾	79 ¼
1	0.9848	0.1736	0.9840	0.1779	0.9832	0.1822	0.9824	0.1865
2	1.9696	0.3473	1.9681	0.3559	1.9665	0.3645	1.9649	0.3730
3	2.9544	0.5209	2.9521	0.5338	2.9497	0.5467	2.9473	0.5595
4	3.9392	0.6946	3.9362	0.7118	3.9330	0.7289	3.9298	0.7460
5	4.9240	0.8682	4.9202	0.8897	4.9163	0.9112	4.9123	0.9325
6	5.9088	1.0419	5.9042	1.0676	5.8995	1.0933	5.8947	1.1190
7	6.8937	1.2155	6.8883	1.2456	6.8828	1.2756	6.8772	1.3055
8	7.8785	1.3892	7.8723	1.4235	7.8660	1.4579	7.8596	1.4920
9	8.8633	1.5628	8.8564	1.6015	8.8493	1.6401	8.8421	1.6785
	11. -	79. -	11 ¼	78 ¾	11 ½	78 ½	11 ¾	78 ¼
1	0.9816	0.1908	0.9808	0.1951	0.9799	0.1993	0.9790	0.2036
2	1.9633	0.3816	1.9616	0.3902	1.9598	0.3987	1.9581	0.4073
3	2.9449	0.5724	2.9424	0.5853	2.9398	0.5981	2.9371	0.6109
4	3.9265	0.7632	3.9231	0.7804	3.9197	0.7975	3.9162	0.8145
5	4.9081	0.9540	4.9039	0.9755	4.8996	0.9968	4.8952	1.0182
6	5.8898	1.1449	5.8847	1.1705	5.8796	1.1962	5.8743	1.2218
7	6.8714	1.3357	6.8655	1.3656	6.8595	1.3956	6.8533	1.4255
8	7.8530	1.5265	7.8463	1.5607	7.8394	1.5949	7.8324	1.6291
9	8.8346	1.7173	8.8271	1.7558	8.8193	1.7943	8.8114	1.8327
	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.

	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.
	12. -	78. -	12 ¼	77 ¾	12 ½	77 ½	12 ¾	77 ¼
1	0.9781	0.2079	0.9772	0.2122	0.9763	0.2164	0.9753	0.2207
2	1.9563	0.4158	1.9544	0.4244	1.9526	0.4329	1.9507	0.4414
3	2.9344	0.6237	2.9317	0.6365	2.9289	0.6493	2.9260	0.6621
4	3.9126	0.8316	3.9089	0.8487	3.9052	0.8657	3.9014	0.8828
5	4.8907	1.0396	4.8861	1.0609	4.8815	1.0822	4.8767	1.1035
6	5.8689	1.2475	5.8634	1.2730	5.8578	1.2986	5.8520	1.3242
7	6.8470	1.4554	6.8406	1.4852	6.8341	1.5151	6.8274	1.5449
8	7.8252	1.6633	7.8178	1.6974	7.8104	1.7315	7.8027	1.7656
9	8.8033	1.8712	8.7951	1.9096	8.7867	1.9479	8.7781	1.9863
	13. -	77. -	13 ¼	76 ¾	13 ½	76 ½	13 ¾	76 ¼
1	0.9744	0.2249	0.9734	0.2292	0.9724	0.2334	0.9713	0.2377
2	1.9487	0.4499	1.9467	0.4584	1.9447	0.4669	1.9427	0.4754
3	2.9231	0.6749	2.9201	0.6876	2.9171	0.7003	2.9140	0.7131
4	3.8975	0.8998	3.8934	0.9168	3.8895	0.9338	3.8854	0.9507
5	4.8718	1.1248	4.8669	1.1460	4.8619	1.1672	4.8567	1.1884
6	5.8462	1.3497	5.8403	1.3752	5.8343	1.4007	5.8280	1.4261
7	6.8206	1.5746	6.8136	1.6044	6.8067	1.6341	6.7994	1.6638
8	7.7950	1.7996	7.7870	1.8336	7.7790	1.8676	7.7707	1.9015
9	8.7693	2.0246	8.7604	2.0628	8.7515	2.1010	8.7421	2.1392
	14. -	76. -	14 ¼	75 ¾	14 ½	75 ½	14 ¾	75 ¼
1	0.9703	0.2419	0.9692	0.2461	0.9681	0.2504	0.9670	0.2546
2	1.9406	0.4838	1.9385	0.4923	1.9363	0.5008	1.9341	0.5092
3	2.9109	0.7258	2.9077	0.7385	2.9044	0.7511	2.9011	0.7638
4	3.8812	0.9677	3.8769	0.9846	3.8726	0.8015	3.8682	0.9184
5	4.8515	1.2096	4.8461	1.2308	4.8407	1.2519	4.8352	1.2730
6	5.8218	1.4515	5.8154	1.4769	5.8089	1.5023	5.8023	1.5276
7	6.7921	1.6935	6.7846	1.7231	6.7770	1.7527	6.7693	1.7822
8	7.7624	1.9354	7.7538	1.9692	7.7452	2.0030	7.7364	2.0368
9	8.7327	2.1773	8.7231	2.2154	8.7133	2.2534	8.7034	2.2914
	15. -	75. -	15 ¼	74 ¾	15 ½	74 ½	15 ¾	74 ¼
1	0.9659	0.2588	0.9648	0.2630	0.9636	0.2672	0.9624	0.2714
2	1.9319	0.5176	1.9296	0.5261	1.9273	0.5345	1.9249	0.5429
3	2.8978	0.7765	2.8944	0.7891	2.8909	0.8017	2.8874	0.8143
4	3.8637	1.0353	3.8591	1.0521	3.8545	1.0689	3.8498	1.0858
5	4.8296	1.2941	4.8239	1.3152	4.8182	1.3362	4.8123	1.3572
6	5.7956	1.5529	5.7887	1.5782	5.7818	1.6034	5.7747	1.6286
7	6.7615	1.8117	6.7535	1.8412	6.7454	1.8707	6.7372	1.9001
8	7.7274	2.0706	7.7183	2.1042	7.7090	2.1379	7.6996	2.1715
9	8.6933	2.3294	8.6831	2.3673	8.6727	2.4051	8.6621	2.2430
	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.

	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.
	16. -	74. -	16 ¼	73 ¾	16 ½	73 ½	16 ¾	73 ¼
1	0.9612	0.2756	0.9600	0.2798	0.9588	0.2840	0.9575	0.2882
2	1.9225	0.5513	1.9201	0.5596	1.9176	0.5680	1.9151	0.5764
3	2.8838	0.8269	2.8801	0.8395	2.8765	0.8520	2.8727	0.8646
4	3.8450	1.1025	3.8402	1.1193	3.8353	1.1361	3.8303	1.1528
5	4.8063	1.3782	4.8002	1.3991	4.7941	1.4201	4.7878	1.4410
6	5.7676	1.6538	5.7603	1.6790	5.7529	1.7041	5.7454	1.7292
7	6.7288	1.9295	6.7203	1.9588	6.7117	1.9881	6.7030	2.0174
8	7.6901	2.2051	7.6804	2.2386	7.6705	2.2721	7.6606	2.3058
9	8.6513	2.4807	8.6404	2.5185	8.6294	2.5561	8.6181	2.5938
	17. -	73. -	17 ¼	72 ¾	17 ½	72 ½	17 ¾	72 ¼
1	0.9563	0.2924	0.9550	0.2965	0.9537	0.3007	0.9523	0.3048
2	1.9126	0.5847	1.9100	0.5931	1.9074	0.6014	1.9048	0.6097
3	2.8689	0.8771	2.8651	0.8896	2.8611	0.9021	2.8572	0.9146
4	3.8252	1.1695	.8201	1.1862	3.8149	1.2028	3.8096	1.2195
5	.7815	1.4619	4.7751	1.4827	4.7686	1.5035	4.7620	1.5243
6	5.7378	1.7542	5.7301	1.7792	5.7223	1.8042	5.7144	1.8292
7	5.6941	2.0466	6.6851	2.0758	6.6760	2.1049	6.6668	2.1340
8	7.6504	2.3390	7.6402	2.3723	7.6297	2.4056	7.6192	2.4389
9	8.6067	2.6313	8.5952	2.6689	8.5834	2.7063	8.5716	2.7438
	18. -	72. -	18 ¼	71 ¾	18 ½	71 ½	18 ¾	71 ¼
1	0.9510	0.3090	0.9497	0.3131	0.9483	0.3173	0.9469	0.3214
2	1.9021	0.6180	1.8994	0.6263	1.8966	0.6346	1.8939	0.6429
3	2.8532	0.9271	2.8491	0.9395	2.8450	0.9519	2.8408	0.9643
4	3.8042	1.2361	3.7988	1.2527	3.7933	1.2692	3.7877	1.2857
5	4.7553	1.5451	4.7485	1.5658	4.7416	1.5865	4.7346	1.6072
6	5.7063	1.8541	5.6982	1.8790	5.6899	1.9038	5.6816	1.9286
7	6.6574	2.1631	6.6479	2.1921	6.6383	2.2211	6.6285	2.2501
8	7.6084	2.4721	7.5976	2.5053	7.5866	2.5384	7.5754	2.5715
9	8.5595	2.7812	8.5473	2.8185	8.5349	2.8557	8.5224	2.8929
	19. -	71. -	19 ¼	70 ¾	19 ½	70 ½	19 ¼	70 ¼
1	0.9455	0.3255	0.9441	0.3297	0.9426	0.3338	0.9412	0.3379
2	1.8910	0.6511	1.8882	0.6594	1.8853	0.6676	1.8823	0.6758
3	2.8366	0.9767	2.8423	0.9891	2.8279	1.0014	2.823	1.0137
4	3.7821	1.3023	3.7764	1.3188	3.7806	1.3352	3.7647	1.3517
5	4.7276	1.6278	4.7204	1.6484	4.7132	1.6690	4.7059	1.6896
6	5.6731	1.9534	5.6645	1.9781	5.6558	2.0028	5.6471	2.0275
7	6.6186	2.2790	6.6086	2.3078	6.5985	2.3366	6.5882	.3654
8	7.5641	2.6045	7.5527	2.6375	7.5411	2.6705	7.5294	2.7103
9	8.5097	2.9301	8.4968	2.9672	8.4838	3.0043	8.4706	3.0412
	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.

	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.
	20. -	70. -	20 ¼	69 ¾	20 ½	69 ½	20 ¾	69 ¼
1	0.9397	0.3420	0.9382	0.3461	0.9366	0.3502	0.9351	0.3543
2	1.8794	0.6840	1.8964	0.6922	1.8733	0.7004	1.8703	0.7086
3	2.8191	1.0261	2.8146	1.0383	2.8100	1.0506	2.8054	1.0629
4	3.7588	1.3681	3.7528	1.3845	3.7467	1.4008	3.7405	1.4172
5	4.6985	1.7101	4.6910	1.7306	4.6834	1.7510	4.6757	1.7715
6	5.6381	2.0521	5.6291	2.0767	5.6200	2.1012	5.6108	2.1257
7	6.5778	2.3941	6.5673	2.4228	6.5567	2.4514	6.5459	2.4800
8	7.5175	2.7362	7.5055	2.7689	7.4934	2.8016	7.4811	2.8343
9	8.4572	3.0782	8.4437	3.1150	8.4300	3.1519	8.4162	3.1886
	21. -	69. -	21 ¼	68 ¾	21 ½	68 ½	21 ¾	68 ¼
1	0.9336	0.3583	0.9320	0.3624	0.9304	0.3665	0.9288	0.3705
2	1.8672	0.7167	1.8640	0.7249	1.8608	0.7330	1.8576	0.7411
3	2.8007	1.0751	2.7960	1.0873	2.7913	1.0995	2.7864	1.1117
4	3.7343	1.4335	3.7280	1.4497	3.7217	1.4660	3.7152	1.4822
5	4.6679	1.7918	4.6600	1.8122	4.6521	1.8325	4.6440	1.8528
6	5.6015	2.1502	5.5920	2.1746	5.5825	2.1990	5.5729	2.2233
7	6.5351	2.5086	6.5240	2.5371	6.5129	2.5655	6.5017	2.5939
8	7.4686	2.8669	7.4560	2.8995	7.4433	2.9320	7.4305	2.9644
9	8.4022	3.2253	8.3880	3.2619	8.3738	3.2985	8.3593	3.3350
	22. -	68. -	22 ¼	67 ¾	22 ½	67 ½	22 ¾	67 ¼
1	0.9272	0.3746	0.9255	0.3786	0.9239	0.3827	0.9222	0.3867
2	1.8544	0.7492	1.8511	0.7573	1.8478	0.7654	1.8444	0.7734
3	2.7816	1.1238	2.7766	1.1359	2.7716	1.1480	2.7666	1.1601
4	3.7087	1.4984	3.7022	1.5146	3.6955	1.5307	3.6888	1.5468
5	4.6359	1.8730	4.6277	1.8932	4.6194	1.9134	4.6110	1.9335
6	5.5631	2.2476	5.5532	2.2719	5.5433	2.2961	5.5332	2.3202
7	6.4903	2.6222	6.4788	2.6505	6.4671	2.6788	6.4554	2.7069
8	7.4175	2.9968	7.4043	3.0292	7.3910	3.0615	7.3776	3.0936
9	8.3447	3.3715	8.3299	3.4078	8.3149	3.4441	8.2998	3.4803
	23. -	67. -	23 ¼	66 ¾	23 ½	66 ½	23 ¾	66 ¼
1	0.9205	0.3907	0.9188	0.3947	0.9170	0.3987	0.9153	0.4027
2	1.8410	0.7815	1.8376	0.7895	1.8341	0.7975	1.8306	0.8055
3	2.7615	1.1722	2.7564	1.1842	2.7512	1.1962	2.7459	1.2082
4	3.6820	1.5629	3.6752	1.5790	3.6682	1.5950	3.6612	1.6110
5	4.6025	1.9537	4.5939	1.9737	4.5853	1.9937	4.5766	2.0137
6	5.5230	2.3444	5.5127	2.3685	5.5024	2.3925	5.4919	2.4165
7	6.4435	2.7351	6.4315	2.7632	6.4194	2.7912	6.4072	2.8192
8	7.3640	3.1258	7.3503	3.1579	7.3365	3.1900	7.3225	3.2220
9	8.2845	3.5166	8.2691	3.5527	8.2535	3.5887	8.2378	3.6247
	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.

	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.
	24. -	66. -	24 ¼	65 ¾	24 ½	65 ½	24 ¾	65 ¼
1	0.9135	0.4067	0.9117	0.4107	0.9099	0.4147	0.9081	0.4186
2	1.8271	0.8135	1.8235	0.8214	1.8199	0.8294	1.8163	0.8373
3	2.7406	1.2202	2.7353	1.2322	2.7299	1.2441	2.7244	1.2560
4	3.6542	1.6269	3.6470	1.6429	3.6398	1.6588	3.6326	1.6746
5	4.5677	2.0337	4.5588	2.0536	4.5498	2.0735	4.5407	2.0933
6	5.4813	2.4404	5.4706	2.4643	5.4598	2.4882	5.4489	2.5122
7	6.3948	2.8472	6.3823	2.8750	6.3697	2.9029	6.3570	2.9306
8	7.3084	3.2539	7.2941	3.2857	7.2797	3.3175	7.2651	3.3493
9	8.2219	3.6606	8.2058	3.6965	8.1896	3.7322	8.1733	3.7679
	25. -	65. -	25 ¼	64 ¾	25 ½	64 ½	25 ¾	64 ¼
1	0.9063	0.4226	0.9044	0.4265	0.9026	0.4305	0.9007	0.4344
2	1.8126	0.8452	1.8089	0.8531	1.8052	0.8610	1.8014	0.8688
3	2.7189	1.2679	2.7134	1.2797	2.7077	1.2915	2.7021	1.3032
4	3.6252	1.6905	3.6178	1.7063	3.6103	1.7220	3.6028	1.7376
5	4.5315	2.1131	4.5223	2.1328	4.5129	2.1525	4.5035	2.1720
6	5.4378	2.5357	5.4267	2.5594	5.4155	2.5831	5.4042	2.6064
7	6.3442	2.9583	6.3312	2.9860	6.3181	3.0136	6.3049	3.0408
8	7.2505	3.3809	7.2356	3.4125	7.2207	3.4441	7.2056	3 4752
9	8.1568	3.8036	8.1401	3.8391	8.1233	3.8746	8.1063	3.9096
	26. -	64. -	26 ¼	63 ¾	26 ½	63 ½	26 ¾	63 ¼
1	0.8988	0.4384	0.8969	0.4423	0.8949	0.4462	0.8930	0.4501
2	1.7976	0.8767	1.7937	0.8846	1.7899	0.8924	1.7859	0.9002
3	2.6964	1.3151	2.6906	1.3269	2.6848	1.3386	2.6789	1.3503
4	3.5952	1.7535	3.5875	1.7692	3.5797	1.7848	3.5719	1.8004
5	4.4940	2.1919	4.4843	2.2115	4.4746	2.2310	4.4649	2.2505
6	5.3928	2.6302	5.3812	2.6537	5.3696	2.6772	5.3579	2.7006
7	6.2916	3.0686	6.2781	3.0960	6.2645	3.1234	6.2508	3.1507
8	7.1904	3.5070	7.1750	3.5383	7.1594	3.5696	7.1438	3.6008
9	8.0891	3.9453	8.0718	3.9806	8.0544	4.0158	8.0368	4.0509
	27. -	63. -	27 ¼	62 ¾	27 ½	62 ½	27 ¾	62 ¼
1	0.8910	0.4540	0.8890	0.4578	0.8870	0.4617	0.8850	0.4656
2	1.7820	0.9080	1.7780	0.9157	1.7740	0.9235	1.7700	0.9312
3	2.6730	1.3620	2 6670	1.3736	2.6610	1.3852	2.6550	1.3968
4	3.5640	1.8160	3.5561	1.8315	3.5480	1.8470	3.5400	1.8624
5	4.4550	2.2699	4.4451	2.2894	4.4350	2.3087	4.4250	2.3281
6	5.3460	2.7239	5.3341	2.7472	5.3221	2.7705	5.3099	2.7937
7	6.2370	3.1779	6.2231	3.2051	6.2091	3.2322	6.1949	3.2593
8	7.1280	3.6319	7.1121	3.6650	7.0961	3.6940	7.0799	3.7249
9	8.0191	4.0859	8.0011	4.1209	7.9831	4.1557	7.9649	4.1905
	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.

	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.
	28. -	62. -	28 ¼	61 ¾	28 ½	61 ½	28 ¾	61 ¼
1	0.8829	0.4694	0.8809	0.4733	0.8788	0.4771	0.8767	0.4810
2	1.7659	0.9389	1.7618	0.9466	1.7576	0.9543	1.7534	0.9620
3	2.6488	1.4084	2.6427	1.4199	2.6364	1.4315	2.6302	1.4430
4	3.5318	1.8779	3.5230	1.8933	3.5153	1.9086	3.5069	1.9239
5	4.4147	2.3474	4.4045	2.3666	4.3941	2.3858	4.3836	2.4049
6	5.2977	2.8168	5.2853	2.8399	5.2729	2.8629	5.2604	2.8859
7	6.1806	3.2863	6.1662	3.3132	6.1517	3.3401	6.1371	3.3669
8	7.0636	3.7558	7.0471	3.7866	7.0305	3.8173	7.0138	3.8479
9	7.94 5	4.2252	7.9280	4.2599	7.9093	4.2944	7.8905	4.3289
	29. -	61. -	29 ¼	60 ¾	29 ½	60 ½	29 ¾	60 ¼
1	0.8746	0.4848	0.8725	0.4886	0.8703	0.4924	0.8682	0.4962
2	1.7492	0.9696	1.7450	0.9772	1.7407	0.9848	1.7364	0.9924
3	2.6239	1.4544	2.6175	1.4659	2.6111	1.4773	2.6046	1.4886
4	3.4985	1.9392	3.4900	1.9545	3.4814	1.9697	3.4728	1.9849
5	4.3731	2.4240	4.3625	2.4431	4.3518	2.4621	4.3410	2.4811
6	5.2477	2.9089	5.2350	2.9317	5.2221	2.9545	5.2092	2.9773
7	6.1223	3.3937	6.1075	3.4203	6.0925	3.4469	6.0774	3.4735
8	6.9970	3.8785	6.9800	3.9090	6.9628	3.9394	6.9456	3.9697
9	7.8716	4.3633	7.8525	4.3076	7.8332	4.4318	7.8138	4.4659
	30. -	60. -	30 ¼	59 ¾	30 ½	59 ½	30 ¾	59 ¼
1	0.8660	0.5000	0.8638	0.503	0.8610	0.5075	0.8594	0.5113
2	1.7320	1.0000	1.7277	1.0075	1.7232	1.0151	1.7188	1.0226
3	2.5981	1.5000	2.5915	1.5113	2.5849	1.5226	2.5782	1.5339
4	3.4641	2.0000	3.455	2.0151	3.4465	2.0301	3.4376	2.0452
5	4.3301	2.5000	4.3192	2.5189	4.3081	2.5377	4.2970	2.5564
6	5.1961	3.0000	5.1830	3.0226	5.1698	3.0452	5.1564	3.0677
7	6.0622	3.5000	6.0468	3.5264	6.0314	3.5528	6.0158	3.5790
8	6.9282	4.0000	6.9107	4.0302	6.8930	4.0603	6.8752	4.0903
9	7.7942	4.5000	7.774	4.5339	7.7547	4.5678	7.7346	4.6016
	31. -	59. -	31 ¼	58 ¾	31 ½	58 ½	31 ¾	58 ¼
1	0.8571	0.5150	0.8549	0.5188	0.8526	0.5225	0.8503	0 5262
2	1.7143	1.0301	1.7098	1.0375	1.7053	1.0450	1.7007	1.0524
3	2.5715	1.5451	2.5647	1.5563	2.5579	1.5675	2.5510	1.5786
4	3.4287	2.0602	3.4196	2.0751	3.4106	2.0900	3.4014	2.1048
5	4.2858	2.5752	4.2745	2.5939	4.2632	2.6125	4.2518	2.6311
6	5.1430	3.0902	5.1295	3.1126	5.1158	3.1380	5.1021	3.1573
7	6.0002	3.6053	5.9844	3.6314	5.9685	3.6575	5.9525	3.6835
8	6.8573	4.1203	6.8393	4.1502	6.8211	4.1800	6.8028	4.2097
9	7.7145	4.6353	7.6942	4.6589	7.6738	4.7025	7.6532	4.7359
	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.

	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.
	32. -	58. -	32 ¼	57 ¾	32 ½	57 ½	32 ¾ -	57 ¼
1	0.8480	0.5299	0.8457	0.5336	0.8434	0.5373	0.8410	0.5409
2	1.6961	1.0598	1.6914	1.0672	1.6868	1.0746	1.6821	1.0819
3	2.5441	1.5897	2.5372	1.6008	2.5302	1.6119	2.5231	1.6229
4	3.3922	2.1197	3.3829	2.1344	3.3736	2.1492	3.3642	2.1639
5	4.2402	2.6490	4.2286	2.6681	4.2169	2.6865	4.2052	2.7049
6	5.0883	3.1795	5.0744	3.2017	5.0603	3.2238	5.0462	3.2458
7	5.9363	3.7094	5.9201	3.7353	5.9037	3.7611	5.8873	3.7868
8	6.7844	4.2394	6.7658	4.2689	6.7471	4.2984	6.7283	4.3278
9	7.6324	4.7693	7.6115	4.8025	7.5905	4.8357	7.5694	4.8688
	33. -	57. -	33 ¼	56 ¾	33 ½	56 ½	33 ¾ -	56 ¼
1	0.8386	0.5446	0.8363	0.5483	0.8339	0.5519	0.8314	0.5555
2	1.6773	1.0893	1.6726	1.0966	1.6678	1.1039	1.6629	1.1111
3	2.5160	1.6339	2.5089	1.6449	2.5017	1.6558	2.4944	1.6667
4	3.3547	2.1786	3.3451	2.1932	3.3355	2.2077	3.3259	2.2223
5	4.1934	2.7232	4.1814	2.7415	4.1694	2.7597	4.1573	2.7778
6	5.0320	3.2678	5.0177	3.2898	5.0033	3.3116	4.9888	3.3334
7	5.8707	3.8125	5.8540	3.8381	5.8372	3.8635	5.8203	3.8890
8	6.7094	4.3571	6.6903	4.3863	6.6711	4.4155	6.6518	4.4446
9	7.5480	4.9018	7.5266	4.9346	7.5050	4.9674	7.4832	5.0001
	34. -	56. -	34 ¼	55 ¾	34 ½	55 ½	34 ¾ -	55 ¼
1	0.8290	0.5592	0.8266	0.5628	0.8241	0.5664	0.8216	0.5700
2	1.6581	1.1184	1.6532	1.1256	1.6482	1.1328	1.6433	1.1400
3	2.4871	1.6776	2.4798	1.6884	2.4724	1.6992	2.4649	1.7100
4	3.3162	2.2368	3.3073	2.2512	3.2965	2.2656	3.2866	2.2800
5	4.1452	2.7960	4.1329	2.8140	4.1206	2.8320	4.1082	2.8500
6	4.0742	3.3552	4.9595	3.3768	4.9447	3.3984	4.9299	3.4200
7	5.8033	3.9144	5.7861	3.9396	5.7689	3.9648	5.7515	3.9900
8	6.6323	4.4735	6.6127	4.5024	6.5930	4.5313	6.5732	4.5600
9	7.4613	5.0327	7.4393	5.0652	7.4171	5.0977	7.3948	5.1300
	35. -	55. -	35 ¼	54 ¾	35 ½	54 ½	35 ¾	54 ¼
1	0.8191	0.5736	0.8166	0.5771	0.8141	0.5807	0.8116	0.5842
2	1.6383	1.1472	1.6333	1.1543	1.6282	1.1614	1.6231	1.1685
3	2.4575	1.7207	2.4499	1.7314	2.4423	1.7421	2.4347	1.6527
4	3.2766	2.2943	3.2666	2.3086	3.2565	2.3228	3.2465	2.3370
5	4.0958	2.8679	4.0832	2.8857	4.0706	2.9035	4.0579	2.9212
6	4.9146	3.4415	4.8998	3.4629	4.8847	3.4842	4.8694	3.5055
7	5.7341	4.0150	5.7165	4.0400	5.6988	4.0649	5.6810	4.0897
8	6.5532	4.5886	6.5331	4.6172	6.5129	4.6456	6.4936	4.6740
9	7.3724	5.1622	7.3498	5.1943	7.3270	5.2263	7.3042	5.2582
	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.

	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.
	36. -	54. -	36 ¼	53 ¾	36 ½	53 ½	36 ¼	53 ¼
1	0.8090	0.5878	0.8064	0.5913	0.8038	0.5948	0.8012	0.5983
2	1.6181	1.1756	1.6129	1.1826	1.6077	1.1896	1.6025	1.1966
3	2.4271	1.7634	2.4193	1.7739	2.4116	1.7845	2.4038	1.7950
4	3.2361	2.3511	3.2258	2.3652	3.2154	2.3793	3.2050	2.3933
5	4.0451	2.9389	4.0322	2.9565	4.0193	2.9741	4.0063	2.9916
6	4.8541	3.5267	4.8387	3.5478	4.8231	3.5689	4.8075	3.5899
7	5.6631	4.1145	5.6451	4.1391	5.6270	4.1638	5.6088	4.1883
8	6.4721	4.7023	6.4516	4.7304	6.4308	4.7586	6.4100	4.7866
9	7.2812	5.2901	7.2580	5.3217	7.2347	5.3534	7.2111	5.3849
	37. -	53. -	37 ¼	52 ¾	37 ½	52 ½	37 ¾	52 ¼
1	0.7986	0.6018	0.7960	0.6053	0.7933	0.6087	0.7907	0.6122
2	1.5973	1.2036	1.5920	1.2106	1.5867	1.2175	1.5814	1.2244
3	2.3959	1.8054	2.3880	1.8159	2.3801	1.8263	2.3721	1.8366
4	3.1945	2.4073	3.1840	2.4212	3.1734	2.4350	3.1628	2.4489
5	3.9932	3.0091	3.9800	3.0265	3.9668	3.0438	4.0534	3.0611
6	4.7918	3.6109	4.7760	3.6318	4.7601	3.6526	4.7441	3.6733
7	5.5904	4.2127	5.5720	4.2371	5.5535	4.2613	5.5348	4.2855
8	6.3891	4.8145	6.3680	4.8424	6.3468	4.8701	6.3255	4.8977
9	7.1877	5.4163	7.1640	5.4476	7.1402	5.4788	7.1162	5.5099
	38. -	52. -	38 ¼	51 ¾	38 ½	51 ½	38 ¾	51 ¼
1	0.7880	0.6156	0.7853	0.6191	0.7826	0.6225	0.7799	0.6259
2	1.5760	1.2313	1.5706	1.2382	1.5652	1.2450	1.5598	1.2518
3	2.3640	1.8470	2.3559	1.8573	2.3478	1.8675	2.3397	1.8778
4	3.1520	2.4626	3.1413	2.4764	3.1304	2.4900	3.1195	2.5037
5	3.9401	3.0783	3.9266	3.0955	3.9130	3.1125	3.8994	3.1296
6	4.7281	3.6940	4.7119	3.7146	4.6956	3.7351	4.6793	3.7555
7	5.5161	4.3096	5.4972	4.3337	5.4782	4.3576	5.4592	4.3815
8	6.3041	4.9253	6.2825	4.9528	6.2608	4.9801	6.2391	5.0074
9	7.0921	5.5409	7.0678	5.5718	7.0434	5.6026	7.0190	5.6333
	39. -	51. -	39 ¼	50 ¾	39 ½	50 ½	39 ¾	50 ¼
1	0.7771	0.6293	0.7744	0.6327	0.7716	0.6361	0.7688	0.6394
2	1.5543	1.2586	1.5488	1.2654	1.5432	1.2621	1.5377	1.3789
3	2.3314	1.8880	2.3232	1.8981	2.3149	1.9082	2.3065	1.9183
4	3.1086	2.5173	3.0976	2.5308	3.0865	2.5443	3.0754	2.5578
5	3.8857	3.1466	3.8719	3.1635	3.8581	3.1804	3.8442	3.1972
6	4.6629	3.7759	4.6463	3.7962	4.6297	3.8165	4.6130	3.8366
7	5.4400	4.4052	5.4207	4.4289	5.4014	4.4525	5.3819	4.4761
8	6.2172	5.0346	6.1951	5.0616	6.1730	5.0886	6.1501	5.1155
9	6.9943	5.6639	6.9695	5.6943	6.9446	5.7247	6.9196	5.7550
	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.

	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.
	40. -	50. -	40 ¼	49 ¾	40 ½	49 ½	40 ¾	49 ¼
1	0.7660	0.6428	0.7632	0.6461	0.7604	0.6494	0.7575	0.6527
2	1.5321	1.2856	1.5265	1.2922	1.5208	1.2989	1.5151	1.3055
3	2.2981	1.9284	2.2897	1.9384	2.2812	1.9483	2.2727	1.9583
4	3.0642	2.5711	3.0529	2.5845	3.0416	2.5978	3.0303	2.6110
5	3.8302	3.2139	3.8162	3.2306	3.8020	3.2472	3.7878	3.2638
6	4.5963	3.8567	4.5794	3.8767	4.5624	3.8967	4.5454	3.9166
7	5.3623	4.4995	5.3425	4.5229	5.3228	4.5461	5.3029	4.5693
8	6.1284	5.1423	6.1059	5.1690	6.0832	5.1956	6.0605	5.2221
9	6.8944	5.7851	6.8691	5.8151	6.8436	5.8450	6.8181	5.8748
	41. -	49. -	41 ¼	48 ¾	41 ½	48 ½	41 ¾	48 ¼
1	0.7547	0.6560	0.7518	0.6593	0.7489	0.6626	0.7460	0.6659
2	1.5094	1.3121	1.5037	1.3187	1.4979	1.3252	1.4921	1.3318
3	2.2641	1.9682	2.2555	1.9780	2.2468	1.9879	2.2382	1.9976
4	3.0188	2.6242	3.0074	2.6374	2.9958	2.6505	2.9842	2.6635
5	3.7735	3.2803	3.7592	3.2967	3.7447	3.3131	3.7303	3.3294
6	4.5283	3.9364	4.5110	4.1560	4.4937	3.9757	4.4764	3.9953
7	5.2830	4.5924	5.2629	4.6154	5.2426	4.6383	5.2224	4.6612
8	6.0377	5.2485	6.0147	5.5747	5.9916	5.3010	5.9685	5.3270
9	6.7924	5.9045	6.7666	5.9341	6.7405	5.9636	6.7145	5.9929
	42. -	48. -	42 ¼	47 ¾	42 ½	47 ½	42 ¾	47 ¼
1	0.7431	0.6691	0.7402	0.6723	0.7373	0.6756	0.7343	0.6788
2	1.4863	1.3383	1.4804	1.3447	1.4746	1.3512	1.4686	1.3576
3	2.2294	2.0074	2.2207	2.0171	2.2118	2.0268	2.2029	2.0364
4	2.9726	2.6765	2.9609	2.6895	2.9491	2.7024	2.9373	2.7152
5	3.7157	3.3457	3.7011	3.3618	3.6864	3.3779	3.6716	3.3940
6	4.4589	4.0148	4.4413	4.0342	4.4237	4.0535	4.4059	4.0728
7	5.2020	4.6839	5.1815	4.7066	5.1610	4.7291	5.1402	4.7516
8	5.9452	5.3530	5.9218	5.3789	5.8982	5.4047	5.8746	5.4304
9	6.6883	6.0222	6.6620	6.0513	6.6355	6.0803	6.6089	6.1092
	43. -	47. -	43 ¼	46 ¾	43 ½	46 ½	43 ¾	46 ¼
1	0.7313	0.6820	0.7283	0.6852	0.7253	0.6883	0.7223	0.6915
2	1.4627	1.3640	1.4567	1.3704	1.4507	1.3767	1.4447	1.3830
3	2.1941	2.0460	2.1851	2.0555	2.1761	2.0651	2.1671	2.0745
4	2.9254	2.7280	2.9135	2.7407	2.9015	2.7534	2.8894	2.7660
5	3.6568	3.4100	3.6418	3.4259	3.6269	3.4418	3.6118	3.4576
6	4.3881	4.0920	4.3702	4.1111	4.3522	4.1301	4.3342	4.1491
7	5.1195	4.7740	5.0986	4.7963	5.0776	4.8185	5.0565	4.8406
8	5.8508	5.4560	5.8269	5.4814	5.8030	5.5068	5.7789	5.5321
9	6.5822	6.1380	6.5553	6.1666	6.5284	6.1052	6.5013	6.2236
	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.

	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.
	44. -	46. -	44 ¼	45 ¾	44 ½	45 ½	44 ¾	45 ¼
1	0.7193	0.6946	0.7163	0.6978	0.7132	0.7009	0.7102	0.7040
2	1.4387	1.3893	1.4326	1.3956	1.4265	1.4018	1.4204	1.4080
3	2.1580	2.0840	2.1489	2.0934	2.1397	2.1027	2.1305	2.1120
4	2.8774	2.7786	2.8652	2.7912	2.8530	2.8036	2.8407	2.8161
5	3.5967	3.4733	3.5815	3.4889	3.5662	3.5045	3.5509	3.5201
6	4.3160	4.1679	4.2978	4.1867	4.2795	4.2054	4.2611	4.2241
7	5.0354	4.8626	5.0141	4.8845	4.9927	4.9063	4.9713	4.9281
8	5.7547	5.5573	5.7304	5.5823	5.7060	5.6072	5.6815	5.6321
9	6.4741	6.2519	6.4467	6.2801	6.4192	6.3081	6.3917	6.3361
	45. -	45. -						
1	0.7071	0.7071						
2	1.4142	1.4142						
3	2.1213	2.1213						
4	2.8284	2.8284						
5	3.5355	3.5355						
6	4.2426	4.2426						
7	4.9497	4.9497						
8	5.6569	5.6569						
9	6.3640	6.3640						
	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.	E. W.	N. S.

THE

THE
USE
Of the foregoing
TABLES
In relation to
SURVEYS.

THEY ſhew by inſpection the alteration of Latitude and Departure, to every Degree and quarter of a Degree on the Compaſs, and that for any Diſtance, not exceeding 100000 Links.

In the uppermoſt Rank of every Diviſion are placed the ſeveral Angles, and their Complements, to 45 Degrees, including the quarter, half and three quarters of each Degree; and in the left-hand Column are the Lengths of the meaſured

Lines of the Field-work, and in the common Areas are the difference of Latitude and Departure.

By the Table thus formed, no more is requiſite to find the alteration of Latitude and Departure, but to ſeek for the Angle in the head Column, and the length of the Line in the ſide Column, and the Requiſites appear in the common Areas, the Latitude always under the given Angle, the Departure under its Complement.

A few Examples will make the Matter plain and eaſy.

Suppoſe the Angle to be *N. E.* 27½ Degrees, and the Line of the Field meaſured to 6 Chains; and it be required to find the Northing and Eaſting of that Station. I find in the Table, under 27½ Degrees, and anſwering to 6 in the left-hand Column, the Number in the common Area 5.3221, which ſhews the Northing; and under 62½ (which is the Complement to that Angle, anſwering the ſame Number in the ſide Column, I find 2.7705, which ſhews the Eaſting of that Station.

If the Angle be the ſame, and the Line be 60 Chains, it is but removing the Prick one place backwarder in the former Anſwers, ſo that in this caſe the Northing would be 53.221, which is 53 Chains, 22 Links and ⅒ of a Link; and the Eaſting would be 27.705, which is 27 Chains, 70 Links and an half. In like manner if the Line were 600 Chains, the Angle remaining the ſame, then the Northing would be 532 Chains, 21 Links, and the Eaſting 277 Chains, 05 Links.

If the meaſured Line doth not conſiſt of an exact Number of Tens, as ſuppoſe its length to be 75 Chains, or 75 Chains, 3 Links, or again 75 Chains, 34 Links, then the proper Requiſites may be thus found: The Angle is ſuppoſed to be $27\frac{1}{2}$ Degrees, and the Line 75 Chains, 34 Links.

In the Table under $27\frac{1}{2}$ Degrees, I find the Northings of the following Numbers to be,	In the Table under $62\frac{1}{2}$ Degrees, the Complement to $27\frac{1}{2}$, I find the Eaſtings of the following Numbers to be,
For 70 Chains, - - - 62.091	For 70 Chains, - - - 32.322
For . 5 Chains, - - - . 4.435	For . 5 Chains, - - - . 2.308
For 30 Links, - - - - . 0.266	For 30 Links, - - - - . 0.138
For . 4 Links, - - - - . 0.035	For . 4 Links, - - - - . 0.018
The Northing of 75.34 — — — } 66.827	The Eaſting of 75.34 — — — } 34.786

FINIS.